

REMARKS

The applicant notes with appreciation the acknowledgement of the claim for priority under section 119 and the notice that all of the certified copies of the priority documents have been received.

The applicant acknowledges and appreciates receiving a copy of form PTO-1449, on which the examiner has initialed all listed items.

Claims 1 and 3 – 16 are pending. Claim 2 has been canceled without prejudice or disclaimer, and claims dependent therefrom have been amended to depend from claim 1. Claim 11 has been amended to remedy a cosmetic defect. The applicant respectfully requests reconsideration and allowance of this application in view of the above amendments and the following remarks.

Claims 1 – 14 were rejected under 35 USC 102(e) as being unpatentable over U.S. Patent No. 6,744,173, Behin et al. ("Behin"). The rejection is respectfully traversed, insofar as the rejection can be applied to the claims as amended, for reasons including the following which are provided by way of example.

As described in the application, the invention is directed to solving the problem of providing a physical quantity sensor that can detect physical quantity in a vertical direction of a substrate. (Specification page 17, lines 10-11.)

Claim 1 has been amended to clarify that the movable electrode is displaceable in the vertical direction of the substrate in accordance with the physical quantity applied to the sensor.

According to the claims, e.g., claim 1, the invention is directed to a physical quantity sensor for detecting physical quantity. The sensor includes a substrate having an opening. Also

provided is a beam protruding in the opening of the substrate and supported on the substrate. There is a fixed electrode supported on the substrate. The beam is movable in a vertical direction of the substrate so that the physical quantity in the vertical direction is detectable. The fixed electrode includes a first fixed electrode and a second fixed electrode, the first and second fixed electrodes protruding in the opening of the substrate. The beam includes a movable electrode, the movable electrode facing both of the first and second fixed electrodes to provide first and second capacitors, respectively. The movable electrode is parallel to the first and the second fixed electrodes in a predetermined direction so that the movable electrode is movable in the vertical direction perpendicular to the predetermined direction in accordance with the physical quantity applied to the sensor. (E.g., claim 1.)

Without conceding that Behin discloses any feature of the present invention, Behin is directed to multi-layer, self-aligned vertical combdrive electrostatic actuators. According to Behin, a voltage is applied between the first and the second fingers (322,324) so that the second comb finger (322) is actuated by an electric force caused by application of the voltage. (See Fig. 3I; and Col. 11, lines 52 – 56.) The second comb finger (322) can be rotated (Col. 11, lines 58 – 64). Further, another actuator shown in Fig. 1D includes the first and the second comb fingers (115, 117), which is actuated by application of the voltage, so that the frame (104) is rotated. (See Col. 9, lines 19 – 38.)

The office action asserts that Behin discloses the invention as claimed. To the contrary, Behin fails to teach or suggest the invention, as presently claimed, when the claims are considered as a whole. Behin fails to teach or suggest, for example, “the movable electrode is movable ... in accordance with the physical quantity applied to the sensor.” (See, e.g., claim 1 as amended.) To the contrary, the actuator in Behin is not a physical quantity sensor for detecting the physical quantity but an actuator for rotating the rotating element (106).

Moreover, Behin fails to teach or suggest, for example, “that the movable electrode is movable ... in accordance with the physical quantity applied to the sensor”. (Claim 1.) To the contrary, according to Behin, the angular position of the rotating element (106) is detected by measuring capacitance between the first and the second comb fingers (115, 117). The measurement result can be used for example, for feedback control of the rotating element (106). (Col. 9, lines 39 – 50.) Accordingly, Behin fails to teach or suggest that the physical quantity, e.g., acceleration, applied to the sensor is detected.

Behin also fails to teach or suggest that “the movable electrode is movable in the vertical direction” of the substrate. To the contrary, in Behin, the rotating element (106) or the second comb finger (322) is rotated. (Col. 9, lines 19 – 38; col. 11, lines 57 – 63.)

Behin fails to teach or suggest, for example, these elements recited in independent claim 1. It is respectfully submitted therefore that claim 1 is patentable over Behin.

For at least these reasons, the combination of features recited in independent claim 1, when interpreted as a whole, is submitted to patentably distinguish over the prior art. In addition, Behin clearly fails to show other claimed features as well.

With respect to the rejected dependent claims, the applicant respectfully submits that these claims are allowable not only by virtue of their dependency from independent claim 1, but also because of additional features they recite in combination. The applicant provides examples of some of these below.

With respect to dependent claim 3, Behin fails to teach or even suggest that “the second fixed electrode has a top surface, which is disposed on a same plane as a top surface of the movable electrode” and that “the first fixed electrode has a bottom surface, which is disposed on a same plane as a bottom surface of the movable electrode.” The office action cites Fig. 3I as

generally teaching the recited terms. To the contrary, Behin fails to set forth each and every element found in the claims. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990).

As shown in Behin, Fig. 3I, it is clear that the top surface of the top layer (324A) is not disposed on the same plane as the top surface of the second comb finger (322), and that the bottom surface of the bottom layer (324B) is not disposed on the same plane as the bottom surface of the second comb finger (322). These fail to teach or suggest the invention as claimed. It is respectfully submitted that the combination of features recited in claim 3 is patentable over the prior art cited by the examiner.

New claims 15 – 16 have been added to further define the invention, and are believed to be patentable for reasons including these set out above.

The applicant respectfully submits that, as described above, the cited prior art does not show or suggest the combination of features recited in the claims, when each claim is interpreted as a whole. The applicant does not concede that the cited prior art shows any of the elements recited in the claims. However, the applicant has provided specific examples of elements in the claims that are clearly not present in the cited prior art.

The applicant strongly emphasizes that one reviewing the prosecution history should not interpret any of the examples applicant has described herein in connection with distinguishing

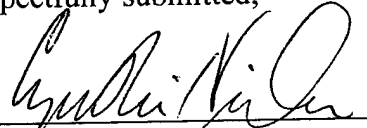
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over the prior art as limiting to those specific features in isolation. Rather, for the sake of simplicity, the applicant has provided examples of why the claims described above are distinguishable over the cited prior art.

In view of the forgoing, the applicant respectfully submits that this application is in condition for allowance. A timely notice to that effect is respectfully requested. If questions relating to patentability remain, the examiner is invited to contact the undersigned by telephone.

Please charge any unforeseen fees that may be due to Deposit Account No. 50-1147.

Respectfully submitted,


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